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MONETARY POLICY AND PERFORMANCE IN THE U.S., JAPAN AND EUROPE, 1973-86

by
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MONETARY POLICY AND PERFORMANCE IN THE U.S., JAPAN AND EUROPE, 1973-86.

Stanley Fischer.[1]

In the period since 1973 each of the major economies has succeeded in reducing the inflation rate after suffering the inflationary impacts of the two oil shocks. In this paper I analyze the policy choices--with the emphasis on monetary policy--and tradeoffs that resulted in lower inflation for the United States, Japan, Germany and the United Kingdom.

The extraordinary stability of inflation, output growth and monetary growth in both Japan and Germany after the first oil shock appear to support the view that adherence to stable preannounced money growth targets is the key to macroeconomic stability. The remarkable stability of U.S. growth combined with low inflation in the period since 1984 in the face of unprecedented variability of monetary growth casts some doubt on that presumption. The main aim of this paper is to draw lessons for monetary policy from the recent historical record.

I start with an overview of macroeconomic developments in the four countries in the period 1972 to 1986, from the collapse of the Bretton Woods system, through the two oil shocks and into the

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[1]Department of Economics, MIT, and NBER. This paper was prepared for the Third International Conference of the Institute for Monetary and Economic Studies, Bank of Japan, June 1987. I am grateful to Phillip Cagan, Rudiger Dornbusch, Robert Feldman, Karen Johnson and Masahiko Takeda for helpful discussions, Takeo Hoshi for research assistance, Data Resources Inc. and Takashi Oyama of the Bank of Japan for data, and the National Science Foundation for financial support.

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disinflationary eighties. Economic policy decisions in the four countries during the two oil shocks are examined more closely in Section II.[2] In Section III I describe the different monetary targeting and, briefly, short-run operating procedures of policy in the four countries. The paper concludes with a discussion of the lessons of this period for monetary targeting and policy, the role of the credibility of policymakers, and the flexible exchange rate system.[3]

I. Shocks and Policy Responses.

Basic macroeconomic developments in the four economies for the period 1972-1986 are summarized in Figures 1, 2, and 3, which present information on real GNP growth, inflation (measured by the CPI[4]), and unemployment respectively, and in Table 1. The period has seen a slowing of real GNP growth in all four countries, a slowing of inflation, and an increase in unemployment.[5] The increases in the German and United Kingdom unemployment rates stand out. There was in 1986 a remarkable convergence of GNP growth rates and, to a lesser

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[2]Meltzer (1985) examines shocks and policy decisions in Japan and the U.S. in the fixed and floating exchange rate periods. His econometric emphasis is on policy reactions to all types of shocks, whereas this paper presents a less formal examination of policy responses in four countries to the two oil shocks.

[3]Meek (1983) contains several very informative papers on monetary policy procedures in major economies.

[4]Inflation rates of the GNP deflator and the CPI often differ significantly over this period. For instance, although CPI inflation for the United States exceeded 10% on a year over year basis four times, GNP deflator inflation never rose into the double digits. In 1986 when CPI inflation rates in Germany and Japan were -0.2% and 0.6% respectively, GNP deflators rose by 3.0% and 2.3%.

[5]These are OECD-standardized measures of unemployment. The German data here are lower than the national statistics.

extent, inflation rates, though there were wide disparities in unemployment rates among the four economies.

Table 1: MACROECONOMIC TRENDS, 1973-1986.

	1973-74	1985-86
Unemployment		
U.S.	5.3	7.0
Japan	1.4	2.7
Germany	1.2	8.5
U.K.	3.0	13.1
Inflation (CPI)		
U.S.	8.5	2.7
Japan	17.4	1.3
Germany	6.9	1.0
U.K.	12.5	4.8
Current Account/GNP.		
U.S.	0.3	-3.2
Japan	-0.5	4.1
Germany	2.1	1.9
U.K.	-2.7	0.6

Source: OECD Economic Outlook, December 1986, and Data Resources, Inc.
Note: Unemployment data are OECD-standardized definition.

The oil shocks are clearly visible in the behavior of the inflation rate in Figure 2. The first oil shock sharply raised the inflation rate in the U.S., Japan and the U.K., but caused barely a ripple in German inflation. The second oil shock produced rapid increases in inflation in the U.S. and the U.K., a 7.8% (CPI) inflation rate for 1980 in Japan, and more than 6% per annum (CPI) inflation in Germany. In the second oil shock, CPI inflation rates for Germany, Japan, and the U.S. were well above rates of increase of the GNP deflator:[6] in the case of Japan the year over year CPI inflation rate

[6] A data appendix that contains all the data referred to in the paper and presented in the figures is available from the author on request.

for 1980 of 7.8% contrasts with just 3.8% on the GNP deflator.[7]

Each oil shock was followed by a significant slowdown in growth or a recession, with one exception. Japan, which had grown at double digit rates in the sixties and at more than 8% per annum in 1972-73 suffered the trauma of a recession in 1974. Its year over year growth rate never reached 5.5% thereafter, though it remained the most rapidly growing of the major economies. Japanese growth slowed very little during the second oil shock; over the entire ten year period starting in 1976 Japanese annual real GNP growth was remarkably stable at rates between 3.1% and 5.3% per annum.

Germany suffered recessions during both oil shocks; unemployment rose to a new higher level after each, and has only recently shown modest signs of reduction. The U.K. similarly experienced a recession with each oil shock and a step increase in the level of unemployment to a new higher level with virtually no signs of improvement thereafter.

The pattern for the U.S. was different. The first oil shock recession was followed by a rapid recovery and decline in unemployment. The second oil shock produced two recessions[8], the second with the highest unemployment rate of the post-World War II period. Rapid recovery again brought the unemployment rate down quite fast, but it nonetheless remains above 1973 estimates of the natural rate of about

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[7]Because of its inappropriate treatment of housing prices, the U.S. CPI significantly mismeasured inflation in the period before 1982. For instance, the 13.5% for 1980 seen in Figure 2 is less than 12% when calculated on the basis of the corrected CPI introduced after 1982.

[8]Because the 1980 recession lasted only six months and the recovery from that recession a year, it is sometimes argued that the entire period from the beginning of 1980 to the end of 1982 should be regarded as one long recession.

5.5%, and even above most current estimates of the natural rate of about 6%.

Not so evident in the figures is the effects of the U.S. fiscal policy shock of 1981-83 and accompanying fiscal tightening in the other three countries. Some of the effects show up in rapid U.S. recovery from the 1981-82 recession and slower recovery in the other economies; others are reflected in the current account changes seen in Table 1.

I now review in more detail the policy choices made in each country during the two oil shocks.

II. Dealing with the Oil Shocks.

The first oil shock hit a booming world economy that had recently abandoned the Bretton Woods system. Raw material prices were already rising fast as domestic inflation rates rose. Free from the constraints of pegged exchange rates, countries believed they could pursue their own goals with little outside constraint. In the case of Germany the goal was low inflation; in Britain it was the maintenance of high growth. Real growth in Britain at 7.9% in 1973 for a short while matched the Japanese rate. In 1973, even before the oil price shock, inflation was high in the United States as a result of expansionary monetary and fiscal policy, and the ending of wage and price controls. It was higher in Britain and much higher in Japan.

Monetary growth data for the period are shown in Figure 4.[9]

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[9]Tables in the appendix provide the data underlying each figure. All growth rates are at annual rates for the quarter relative to the same quarter a year before. Figure 4 shows for each country that monetary variable that receives most attention from the monetary policymakers: M1 in the U.S., (M2+CD's) in Japan; Central Bank Money in Germany; and sterling M3 in the U.K. Growth rates for a variety of monetary variables for each country are presented in Tables A-4.

Money growth in both the U.K. and Japan exceeded 20% per annum in 1972 and 1973[1]. Such growth rates of money had been common in Japan during her high growth period, but not in Britain. The growth rate of both M1 and M3 was sharply reduced in Japan at the end of 1973, before the oil price shock hit, but money growth in the U.K. (M3) was still 27.5% (quarter over same quarter a year earlier) in the fourth quarter of 1973. U.S. M1 and M2 growth were reduced in 1973. With the shift to a floating exchange rate allowing Germany to pursue its domestic inflation goals, the growth rate of central bank money in Germany was cut drastically in the second quarter of 1973. Thus by the time of the oil price increase money growth rates were being reduced in three of the four countries. And if monetary policy is judged by the nominal interest rate (Figure 5 - monetary policy had turned right in Britain too in mid-1973.--

In the next year higher oil prices fed through into higher inflation in each country. Although there were deflationary forces in place already, the high inflation and continuing high wage growth reinforced the resolve of the monetary authorities in each country to keep money growth low[2]. With the oil shock adding to the rate of

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--This applies to both M1 and M3 growth rates in Japan, and M3 and sterling M3 in the U.K. U.K. M1 growth was 14% in 1973 but only 5% in 1974.

--In this period money growth was not taken as a measure of the thrust of monetary policy in Britain. Even if it were, the differences between the growth of M1, which fell drastically after the middle of 1973, and the growth rates of M3 and M5 would have complicated the interpretation of policy. It was in large part the correlation between M3 growth in 1973 and 1974 with the subsequent inflation that led to its later use as a monetary target.

--U.K. money growth began to fall from the second quarter of 1974.

inflation, real balances in each country were falling, putting further pressure on interest rates and demand. Nominal interest rates stayed high through 1974, though they were falling rapidly in Germany.

Slowdowns or recessions began in each country in the first quarter of 1974. In part because the nature of cost shocks were not then well understood, and because the unemployment rate was slow to rise, the slowdowns did not cause any change in policy. Given the short lag between the oil price increase and the start of the recessions, the recessions must already have been in train, and would have taken place as a result of the tightening of policies in mid-1973 even without the oil price increase.

The oil price rise served rather to intensify the recessions as high inflation, continued low unemployment and rapid wage growth kept monetary and fiscal policy tight through 1974. In the U.S. the main thrust of policy until almost the end of 1974 was to fight inflation. Both M1 and M2 money growth were kept low and the Treasury bill rate held high (Figure 3). There was a small full employment surplus in 1974 (Figure 4), and proposals for a tax increase to deal with the inflation. Rates of wage increase (Figure 1) stayed high through 1974 as inflation accelerated.

In Japan money growth was well below the 20% rate of inflation in 1974, with the result that real balances fell and interest rates increased. With the monetary squeeze, real GNP growth (Figure 2) turned negative at the beginning of 1974, and stayed negative quarter over same quarter a year before throughout the year. But rates of wage

increase and inflation remained above 20%, for another year. By the end of 1974 the inflation rate in Japan was beginning to fall though wage increases were still rapid, and the government budget was moving into a larger deficit.

Money growth was kept low in Germany through 1974. Real GNP growth was low in 1974, turning negative at the end of year and for most of 1975. High rates of wage increase continued through 1974, inflation still stayed high, while unemployment remained below 2%. M2 and M3 growth were reduced in Britain in mid-1974 with interest rates and the government budget deficit remaining high. In Britain the rate of wage increase was accelerating at the end of 1974.

Only at the end of 1974 did unemployment start rising in each country. At that point interest rates in the U.S. and Germany were falling fast. The seriousness of the recession struck home in the U.S. at the end of 1974, leading in March 1975 to a fiscal stimulus in the form of a $50 per taxpayer check, visible in Figure 6 in the sharp temporary increase in the full employment deficit. The recession, high rates of wage increase and high inflation continued well into 1975, with the unemployment rate peaking in the second quarter. Monetary growth (M1) was procyclical in this recession, falling through the first quarter of 1975, and only then beginning to increase. Even so, the annual growth rate of M1 (quarter over the same quarter a year before) did not exceed 6% over the entire three years starting in 1973:4. M2 growth too fell sharply in the recession but then increased to more than 10% for the two years following the end of the recession. Inflation

fell rapidly after the middle of 1975, and by the time of the election campaign at the end of 1976 CPI inflation was at less than 5%.[13] Wage increases were still at double-digit rates into 1975, and did not fall to much below 8% even after the recession.

The decisive change in Japanese inflation came at the end of 1974 and the beginning of 1975, with the new wage agreement in 1975 reducing wage inflation by more than 10%. At the same time nominal interest rates began to decline, and money growth was raised. The central government budget deficit began to increase from 1975, and continued rising until it reached more than 5.4% of GNP in 1978.[14] The recovery of real growth started early in 1975.

In Germany central bank money growth was raised at the beginning of the year. Inflation and rates of wage increase too declined from early 1975, real GNP growth turned around at about the same time as in the United States, though unemployment peaked in the last quarter.

The recession and inflation lasted longer in the U.K; indeed there were two separate periods of negative real GDP growth in 1974 and 1975. Wage inflation was sharply reduced during 1975, moving from a (quarter over same quarter a year earlier) peak of 32% in 1975:1 to 21.5% in 1975:4. Inflation moved into the low teens in 1976 as money growth continued well below the inflation rate through 1975 and nominal interest rates remained high. Despite a renewal of growth in 1976, the unemployment rate in the U.K. continued rising until the end of 1977, when it reached 6.3%, compared with 2.6% at the end of 1973.

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[13] GNP deflator inflation never fell much below 6%, the difference again resulting in part from the incorrect treatment of the costs of housing.
[14] Data are from Hamada and Hayashi (1985), pp.86-87.

Perhaps the most revealing contrast in this period is that between the U.K. and Japan. Before the recession and oil price shock, both countries had high rates of money growth. In 1973 Britain had lower price and wage inflation, suggesting that inflationary pressures for 1974 were higher in Britain with her lower rate of growth of potential output. Japanese money growth was decisively reduced at the end of 1973; it took longer in Britain. Output growth turned negative at the same time in both countries in 1974 but recovered somewhat during that year. However, the Japanese recession represented a much larger reduction in growth below trend rates than the British recession. In both countries rates of wage increase rose in 1974, more so though in Britain.

The decisive difference occurs at the beginning of 1975, when Japanese wage inflation fell sharply in the new wage agreement, but British wage inflation continued high through the end of the year. With money growth (broader definitions) kept down in Britain in 1975 and wage increases continuing at high rates, further recession occurred.[15] Inflation in the UK came down from the 20% range to the low teens at the end of 1976, but stayed in double digits virtually through the remainder of the decade.

What are the lessons of this episode? First, the fact that the oil shock hit overheated economies made dealing with the shock more difficult. But it is in the nature of such shocks that they are more

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[15]Once again the different money stocks give different signals in Britain as M1 growth was relatively high in 1975. Nominal interest rates were held in the double digits but real interest rates were still substantially negative.

likely to occur when demand is booming than when economies are in recession. Second, it may be argued that the fact that an oil price increase is both inflationary and recessionary means that monetary policy was too restrictive for too long. Certainly Japan brought about a big recession measured by the loss of potential output. Quite likely a more gradual reduction in the growth rate of money in Japan, and some accommodation of inflationary pressures in 1974 in the US and Germany would have moderated the recessions, at the cost of a less rapid reduction in inflation. Third, through the end of the recession exchange rates moved surprisingly little (Figure 7). The DM appreciated in the first half of 1973, the yen and sterling depreciated during the recession as implied by their greater inflation, but exchange rate movements did not play a large part in the adjustment to the oil shock. Fourth, it is difficult not to give the behavior of wages an independent role in the story. Japanese inflation fell fast after rates of wage increase came down; U.K. inflation stayed high with high wage inflation. Later in the paper I examine whether the credibility of the policymakers in the two countries explains the difference.

In both Germany and Japan monetary policy was in part guided by the hope of establishing the credibility of the central bank's determination to maintain low inflation in the new floating exchange rate world. The recessions could be viewed as investments in reputation, which paid off in the case of Japan in the second oil crisis. That leaves open the question of why there was not a similar payoff for Germany.

After the first oil shock German and Japanese monetary policies were embarked on new anti-inflationary courses. Despite the introduction of monetary targeting in 1975, there appears to have been no significant change in the nature of U.S. monetary policy, and U.K. monetary policy was still difficult to understand. (Fischer, 1987)

In the years between the oil shocks the U.S. economy showed rapid growth and declining unemployment from 1976 to 1978 while inflation increased; Japan grew rapidly, albeit slowly by its historical standards, with slowing inflation; German growth was moderate with slowly falling unemployment while inflation remained at around 4%; the U.K. succeeded in reducing the unemployment rate slightly, while the inflation rate except in 1978 remained in double digits.

In retrospect, it is clear that U.S. monetary policy in the period between the oil shocks was too expansionary, even though money growth rates did not rise much. Rather, the rapid growth and rising inflation were accompanied by an increasing velocity of circulation (the case of the missing money). In Japan gradually slowing money growth was accompanied by a rising budget deficit to 1978. The possibility of countercyclical fiscal policy was neutralized by the existence of a massive budget deficit, a condition that is familiar in the U.S. Central bank money growth in Germany remained around 8-11% for the period until 1980. Money growth and budget deficits in the U.K. were high through the end of the decade.

The Second Oil Shock.

The real price of oil fell from the end of 1976 until the beginning of 1979, then virtually doubled within the next year, continuing its increase until the middle of 1981. With unemployment continuing to fall in the United States and rates of wage increase rising, the second oil shock like the first hit an economy that was already operating close to full capacity and with high inflation. The other major countries too had grown rapidly in 1978.

In the U.S. the falling dollar during 1978 had led to a change in monetary policy at the end of that year. Both M1 and M2 growth were slightly lower in 1979 than in 1978, and interest rates were higher. Inflation nonetheless increased, with the CPI rising 13.3% during 1979. The GNP deflator grew 8.8%, year over year in 1979, and at virtually the same rate during the year. Rising interest rates and oil prices account for the more than 4% difference between CPI and GNP deflator inflation.

Paul Volcker was appointed Chairman of the Fed in August 1979. Confronted with rising inflation, and continued dollar weakness, the Fed in November 1979 made its decision to stem the inflation. Accompanying this decision, the Fed declared a change in its operating procedures to place far more weight on meeting its monetary targets and to reduce the emphasis put on interest rates.

CPI inflation rates exceeding 18% per annum in the first quarter of 1980 led to a panic imposition of credit controls in March 1980, intensifying an extraordinarily short sharp recession that can now be seen to have started in January 1980. M1 growth was cut to negative rates in the second quarter of 1980, and then raised as the extent of

the recession became clear. The recession ended in the middle of 1980 with CPI inflation down but GNP deflator inflation little reduced, and with inflation outpacing money growth and thereby reducing real balances. Interest rates had fallen rapidly in the recession but rebounded just as rapidly and moved to new highs at the start of the 1981-82 recession. It was during this period that the Fed maintained the monetary pressure that broke the inflationay momentum. Money growth was kept low into 1982.

The Fed kept up the pressure--visible both in low money growth and high nominal interest rates--through August 1982, by which time it was clear the inflation rate had fallen and that unemployment was rising rapidly. In August 1982, the start of the international debt crisis, the Fed announced the end of the monetary policy inaugurated three years earlier. Money growth was increased sharply, interest rates were driven down, fueling the recovery that began at the end of 1982. A second expansionary force came from the major tax cuts that went into effect in 1982; a third was the decline in the price of oil that began in 1982.

The U.S. took a long time to deal with the second oil shock, with the imposition of credit controls and the 1980 recession probably prolonging the adjustment period. Rates of wage increase started falling rapidly only after the middle of 1981, and by the end of 1982--with the unemployment rate above 10.5%--had fallen to less than half their 10.8% level at the start of 1981. They have continued falling since then, as disinflation has continued.

M1 growth since 1982 has been on average higher than over any other four year period since World War II, and except in 1984 well above its target ranges. M2 growth has continued relatively smoothly, within its target ranges. Nominal interest rates were actually higher in 1984 than in 1982 and 1983, but subsequently fell, reducing the real interest rate.

The great success of Japanese macroeconomic policy was the avoidance of a recession in the second oil shock. Money growth was cut at the end of 1979 and kept down into 1981. The nominal interest rate rose rapidly, growth slowed somewhat, inflation rose, real growth fell especially in 1981, but still during 1981 real GNP grew 2.5%. Wage inflation was falling over this entire period, thereby avoiding the pass-through of higher prices into wages. Japan was thus spared the choice between accommodation and a wage-price spiral, or a recession, perhaps because that choice had already been made once before. Once it was clear that inflation was under control, the Bank of Japan permitted an increase in money growth in the second half of 1981. The yen had depreciated betweeen 1979 and 1980 but then appreciated into 1981, assisting the disinflation.[16]

Germany met the second oil price increase with a cut in the growth rate of central bank money from 10% per annum in the first half of 1979 to 5% in the first half of 1980, with interest rates moving in the opposite direction. Price and wage inflation rose into 1980 and

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[16] In February 1980 the Bank of Japan demonstrated its independence and its intention of keeping inflation low by for the first time ever raising the official discount rate during the budget debate in the Diet.

unemployment was still falling. The Bundesbank evidently saw this as the time when control over inflation had to be asserted; it also attributed part of the tightness of monetary policy in 1981 to the need to stem the depreciation of the currency; and it regarded the budget deficit as another cause to maintain monetary tightness.

Recession started in 1980, and unemployment began its ascent in the middle of the year. From 2.9% (standardized definition) in the second quarter of 1980, unemployment kept increasing until it reached more than 8% three years later. Low money growth (4%) and the recession continued for over two years, with recovery getting under way only in 1983, when central bank money growth was increased to near 8%. Wage and price inflation were surprisingly strong through 1982, with CPI inflation still above 5%, and wages and the GNP deflator rising more than 4% in 1982. The continuing wage increases and weakness of the Deutschemark were the main factor ensuring the maintenance of monetary tightness through 1982. The Bundesbank was clearly determined to move the core inflation rate down from about 4%, the rate before the oil shock, closer to zero, and was willing to pay the price of a long recession and rising unemployment. It does not appear that the oil price shock itself played a large part in creating this recession in Germany.

The U.K. succeeded in bringing its inflation rate down in this same period, but here the oil price shock played only a small part. Sterling appreciated as the price of oil increased; wage inflation likewise increased from 1979 to 1980. Money growth (all definitions)

was kept well below the inflation rate and nominal interest rates increased. A recession started in the second quarter of 1980; over the six quarters from the end of 1979 the unemployment rate more than doubled to reach a level of 10.2%. Wage inflation came down but did not fall below 10% until the middle of 1983.

Under the Medium Term Financial Strategy announced in 1980 monetary growth (M3) was to be steadily reduced along with the public sector borrowing requirement. Both money growth and the PSBR initially exceeded target levels but were reduced steadily, and with the pressure of rising unemployment wage and price inflation finally fell. By 1983 and 1984 U.K. inflation was close to U.S. levels. However unemployment rates were well above those in the U.S. and were showing very little sign of recovery. The monetary situation was once again confused, this time because the demand function for sterling M3 appeared to be shifting.

During the period from 1979 to 1983 the U.S., Germany and the U.K. each undertook a period of extremely restrictive policy designed to break inflationary momentum. Each created a major recession, and in Germany and the U.K. a long-term increase in unemployment. Each did succeed in bringing down inflation. The second oil price increase was more important in determining the timing of the U.S. policy measures than those in the other two countries. Even so, both the U.S. and the U.K. would have in any event had to deal with the high inflations they were suffering before the oil price shock.

The German disinflation of 1980-83 is in many respects puzzling. Relative to the U.S. and Britain, it accomplished little on the inflation front. Year over year the CPI inflation rate peaked at 6.3%, compared with its minimum of 2.7% in 1978; the GNP deflator never rose more than 4.8%[17], compared with its minimum of 3.6% in 1976. Wage inflation peaked in 1980 at a little over 7%. By the time monetary policy was relaxed in 1983, the GNP deflator was rising at 3%. During this period the unemployment rate increased from 2.9% to more than 8%. There are two puzzling questions. First, why did the relatively low inflation produce so much determination to maintain restrictive policies? The answer here starts from the Bundesbank's stern views on the dangers of inflation, and on its failure to hit its money targets (see Table 5 below) in 1976 through 1978. It was afraid that inflation would get out of hand. Second, why did those policies have so large an effect on unemployment and so little effect on inflation? It is not at all clear why the German Phillips curve appears to be so flat during that period. Nor is it clear why the Bundesbank pressed so hard on money growth rather than trying to produce a more gradual disinflation, such as had been achieved by the Bank of Japan.

Here the contrast between Germany and Japan is most interesting. The Bank of Japan clearly had achieved credibility by 1980. It is hard though to credit the view that the Bundesbank lacked credibility. Up to 1979 it is difficult to tell the monetary policies of the two banks apart--including an increase in money growth at the end of 1978 and an

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[17]At its quarter over same quarter a year before peak, GNP deflator inflation in 1980:2 was 5.7%.

increase in inflation in 1980. Once again wage behavior seems to be key: Japanese workers were willing to take a real wage cut; German workers obtained higher nominal wage increases as inflation rose in 1980, and rates of wage increase slackened only as unemployment rose. (Bruno and Sachs, 1986).

The two oil shock episodes tell less clear stories about the role of policy than might have been expected. The political lessons of the U.S. and U.K. cases are clear: eventually the pressure to deal with double digit inflation becomes overwhelming. But the failure of the Bundesbank's restraint in the years following the first oil shock to pay off in the second oil shock raises important questions about both the role of monetary targets and credibility in monetary policy.

The Aftermath.

The U.S. rebound from the 1982 recession contrasts with the failure of unemployment in Germany and the U.K. to recover significantly. In contrast to the accommodative monetary policy of the Fed, the Bundesbank kept central bank money growth at 5% or less until 1986. In the U.K. money growth, measured by the broader aggregates was highly expansionary, though interest rates were increased in 1985 as wage inflation resumed.

The major difference in policies was fiscal. Table 2 presents fiscal policy data for the period 1980-1986. From 1982 on, U.S. fiscal

Table 2: FISCAL POLICY, 1980-1986.

General government. (Surplus/GNP, as %)	1980	1981	1982	1983	1984	1985	1986
United States	-1.3	-1.0	-3.5	-3.8	-2.7	-3.4	-3.4
Japan	-4.4	-3.8	-3.6	-3.7	-2.2	-1.4	-1.5
Germany	-2.9	-3.7	-3.3	-2.5	-1.9	-1.1	-1.0
U.K.	-3.5	-2.8	-2.3	-3.6	-3.9	-2.6	-3.1
Fiscal impulse*							
United States	0.5	-0.9	1.3	0.6	0.5	0.8	0.1
Japan	-0.2	-0.6	-0.7	-0.5	-1.0	-0.5	-0.3
Germany	0.2	-0.1	-1.5	-1.4	-0.2	-0.6	0.3
U.K.	-1.1	-2.9	-1.4	1.1	0.8	-0.5	0.7

Source: OECD Economic Outlook, Dec. 1984, Table 3 (for fiscal impulse, 1980-1983); Dec. 1986, Table 5 (for remaining data).
*Fiscal impulse is the increase in the structural budget deficit, as a percentage of GNP.

policy was strongly expansionary; in 1982 and 1983 in particular German fiscal policy was strongly contractionary. With both monetary and fiscal policy contractionary in Germany, there was little to propel the recovery from the recession. Although the dollar appreciation might suggest a depreciation of the DM that would have allowed exports to serve as the engine of growth, as they did to some extent in Japan, the DM--tied in to its major trading partners through the EMS--did not in fact depreciate much during this period.

Bundesbank annual reports note the policy tradeoff between inflation and more rapid growth, express satisfaction with the pace of the recovery, and regret over the failure until the end of 1986 for more rapid real growth to have an effect on unemployment. The decision to expand more slowly than in the United States was a deliberate one,

reflecting a greater weighting on low inflation than the U.S. political system imposes. The Bundesbank notes frequently that its prime task is to preserve the value of money, and it is clear that maintaining low or perhaps eventually even zero inflation is its chief long run goal. This goal may reflect dissatisfaction with the outcome of policy between the oil shocks when concern over unemployment was more evident in Bundesbank reports but the inflation rate stayed around 4%.

III. Monetary Targeting.

Between the oil shocks each of the central banks either introduced monetary targeting, or shifted their procedures to focus more on the money stock as an intermediate objective of policy. How, if at all, did this change contribute to the secular reduction in inflation experienced by each country?

United States.

Monetary targeting was introduced in the U.S. in March of 1975; target ranges were specified for M1, M2 and M3 growth rates. As shown in Table 3, M1 and M2 outcomes fell within their target ranges in the first year, M1 even towards the bottom of its range. But in a pattern that was to become quite standard, not all the money targets were acheived simultaneously.

Table 3: US MONEY GROWTH TARGETS AND OUTCOMES, 1975-1987.

Year	M1		M2		M3	
	Target	Outcome	Target	Outcome	Target	Outcome
1975	5.0-7.5	5.3	8.5-10.5	9.7	10.0-12.0	12.3
1976	4.5-7.5	5.8	7.5-10.5	10.9	9.0-12.0	12.7
1977	4.5-6.5	7.9	7.0-10.0	9.8	8.5-11.5	11.7
1978	4.0-6.5	7.2	6.5- 9.0	8.7	7.5-10.0	9.5
1979	3.0-6.0	5.5	5.0- 8.0	8.3	6.0- 9.0	8.1
1980	4.0-6.5	7.3	6.0- 9.0	9.6	6.5- 9.5	10.2
1981	3.5-6.0	2.3[1]	6.0- 9.0	9.5	6.5- 9.5	11.4
1982	2.5-5.5	8.5	6.0- 9.0	9.2	6.5- 9.5	10.1
1983*	4.0-8.0	10.0	7.0-10.0	8.3	6.5- 9.5	9.7
1984	4.0-8.0	5.2	6.0- 9.0	7.7	6.0- 9.0	10.5
1985*	4.0-7.0	11.9	6.0- 9.0	8.6	6.0- 9.5	7.4
1986	3.0-8.0	15.2	6.0- 9.0	8.9	6.0- 9.0	8.8
1987			5.5- 8.5		5.5- 8.5	
Mean		7.7		9.1		10.2
Std.dev.[2]		3.3		0.8		1.6
Std.err[3]		2.6		0.7		0.9
Cum.excess[4]		29.6%		14.3%		20.0%

Source: Isard and Rojas-Suarez (1986), Table 35, p.84, for data through 1985. Targets for 1987 and 1986 outcomes are from "Monetary Policy Report to the Congress", Federal Reserve Bulletin, April 1987, 239-254.
Note: Data for targets and outcomes are for then current definitions.
*These are target ranges announced at the start of the year. Targets were rebased in mid-year.
[1] Both the target and reported outcome for M1 are for M1 adjusted for shifts into NOW accounts, i.e. numbers here are lower than in Figure 4.
[2] Standard deviation.
[3] Mean square difference between outcome and center of target range.
[4] Cumulative excess of final level of the actual money stock over level that would have been produced by growth at the mid-point of the target range each year, starting from initial level.

Monetary targeting did not help prevent the inflationary buildup between 1976 and 1979, in part because of data difficulties. There are significant differences between money stock measures reported at the time, and measures based on subsequent data revisions and redefinitions.[18] The period from 1976 saw rising M1 (new definition)

[18] In particular, the 5.5% M1 growth reported in Table 2 for 1979 was for the then M1-A definition of money, which excluded non-bank checkable deposits. The growth rate for M1-B, which included the latter deposits and is close to current M1, was nearly 2% higher.

growth and steadily declining target ranges for M1--part of the then widely espoused gradualist strategy for reducing the inflation rate. M1 growth (new definition) rose sharply at the beginning of 1977, succeeding in keeping nominal interest rates falling until late in 1978 as the recovery proceeded fast. But by the then current definitions, M1 growth fell in 1978, and was even lower in 1979, suggesting at the time that monetary policy was not especially expansionary. Nonetheless the inflation rate steadily increased, from less than 6% at the end of 1976 to near 9% at the end of 1979. Rapid output growth, propelled in part by a rising full employment deficit and falling real price of oil, was possible with little rise in the money growth rate because of rising velocity, caused in part by higher interest rates and in part by a shift out of M1 (both the case of the missing money and the case of the creation of new forms of checkable deposit).

From the viewpoint of monetary control, the period from 1976 to 1979 is interesting for the fact that the Fed clearly intended to move the inflation rate down through gradual reduction of the growth rate of the various money stocks, that in terms of then available data it seemed to be doing that from 1977 to 1979 (the growth rate of each of the M's falls in Table 3 during that period), but that it nonetheless turns out to have been feeding the inflation.

With the shift in monetary policy at the end of 1979, money targets were to receive more weight and interest rates were to be allowed to fluctuate more. But in its first two years, the new regime had to deal with the effects on the demand for money of financial

deregulation. The Fed declared targets for two measures of M1 that were then being used, and in 1980 came close to meeting them. In 1981 however it was significantly below its M1 target[19], and in any event at that time had declared targets for four different M1 measures, together with M2, M3, and bank credit. Aside from the undershooting of the M1 target in 1981, the Fed was above on all targets specified in Table 3 in the years 1980-1982 that it was supposedly following monetary targets.

Nonetheless, it was during this period that the Fed broke the inflationary momentum of the previous twenty years--and the monetary targets assisted in that endeavor. The reason is that the unprecedentedly high nominal interest rates of 1980 and 1981 would not have been politically possible without money targets as the supposed guides for monetary policy. When in August 1982 it became clear that the recession and disinflation were well under way, and with high interest rates exacerbating the developing international debt problem, the money targets gave way, with M1 money growth exceeding 12% in the next year and M2 money growth exceeding 17%.

The high rates of money growth are consistent with the increase in the demand for real balances that comes with the end of an inflationary period, or more prosaically with a reduction in the nominal interest rate. As nominal interest rates decline and the quantity of real balances demanded increases, the central bank is faced with the choice of whether to supply money more rapidly than simple nominal GNP targeting would imply, or whether to force the increase in real balances

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[19]The target in Table 3 is for M1-B, close to current definitions of money.

through further disinflation. So long as money growth targets are not sacrosanct, and provided the monetary authority can exercise self-control, the growth rate of money can indeed be temporarily increased. Even beyond the normal increase in the demand for real balances that comes from a reduction in interest rates, the U.S. disinflation seems to have seen a shift in the M1 demand function.[20]

Instability of the demand for M1 is in part a result of regulatory changes and innovations in the monetary system that have changed the nature of both M1 and M2. With most interest rate controls on bank liabilities removed, the pace of financial innovation that affects M1 demand is likely to slow, but it is certainly the fate of central bankers to contend with shifts in the demand function for money in future as well.

The extraordinary feature of US monetary policy in the 1980's has been its success at reducing the inflation rate despite extremely high rates of money growth. And, in the period since 1984, highly variable money growth has been fully compatible with steady real output growth--with 1987 likely to be another year of moderate growth and moderate inflation despite 15% M1 growth in 1986.

Despite its consistent failure to achieve money targets, the Fed is required by law to announce them. That requirement serves a useful purpose, which is to force the Fed in advance to explain its choice of

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[20]Rasche (1986) presents the results of a comprehensive re-examination of U.S. money demand functions, concluding that while the shift in the demand for money function cannot be adequately explained, it can be simply parameterized, and that money demand functions therefore continue to play a useful role in the setting of money targets.

targets, and to explain ex post its failure to achieve them. I take up below the question of whether it should be forced to adhere to them more closely.

Japan.

We have already seen how Japan dealt with its inflation problem decisively and at high cost immediately following the first oil shock. Up to the end of the Bretton Woods system, Japanese macroeconomic policy, sheltered behind capital controls, had been driven by the current account of the balance of payments and the fixed exchange rate. Current account deficits produced contractionary policy and a growth slowdown; surpluses turned the stop sign to go. Money growth had been high and variable, and there was very little other than the exchange rate to guide policy. The domestic financial markets were repressed, with monetary policy operating to a large extent through rationing and moral suasion. (Suzuki, 1980; Feldman, 1986)

With the exchange rate anchor for monetary policy gone in 1973, the Bank of Japan switched to domestic price stability as the main criterion for policy, with the strategic aim of gradually reducing the inflation rate, and with the money stock as an intermediate policy objective.[21] It took decisive action in 1974 by reducing the growth rate of (M2+CD's) to 11%, less than half the value of the previous year.

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[21] In the Translator's Note to Suzuki (1980), Greenwood states that the Bank of Japan announced its intention to pursue monetary targets in July 1974. This probably refers to an internal Bank of Japan decision; money stock projections were first announced in 1978.

So strong and sudden a contraction produced a serious recession. But by the middle of 1975 the inflation rate was below double digits, and it has stayed there; indeed it continued falling virtually throughout except for a small rise during the second oil crisis. Since the beginning of 1982 the inflation rate has not exceeded 2.5% on a year over year basis. Money growth has contined to fall with the inflation rate.

Although the Bank of Japan has annual money growth targets it does not announce them (Suzuki, 1985). Rather the Bank each quarter publishes a projection of the growth rate of (M2+CD's) for the four quarters ending at the end of that quarter. Data for fourth quarter

Table 4: (M2+CD) GROWTH PROJECTIONS AND OUTCOMES, JAPAN.

	Projection	Actual
1978	12-13	12.6
1979	11	10.3
1980	8	7.6
1981	10	10.4
1982	8	8.3
1983	7	6.8
1984	8	7.9
1985	8	9.0
1986	8- 9	9.2
Mean	9.0	9.1
Std.dev.[1]		1.7
Std.err.[2]		1.2

Sources: For 1978 through 1983, BIS Annual Report, 1983, p.71; for later years, BIS Annual Report, for 1986 actual, IFS.
Note: Data are for fourth quarter of each year.
[1] Standard deviation
[2] (Mean square difference between actual and mean of projection) x 4, to transform error to an annual rate.

targets for the years from 1978 are shown in Table 4.[22]

[22] These data differ somewhat from those presented in Meltzer (1986), Table 1.

Suzuki (1985) explains the use of projections rather than targets as giving the central bank flexibility and freeing it from political pressures. In addition, this method of targeting has the benefit of largely describing what has already been done. It also means that divergences from target in the current quarter appear to be only one quarter their actual size at an annual rate. Even so, the outcomes are reasonably close to the projections.[23] Note further that the general trend of both projections and actuals is negative, which is consistent with the gradual decline of the inflation rate in Japan. The projected growth rates do change cyclically though. There was a nearly 3% per annum increase in the growth rate in 1981 (this can be seen also in Figure 4) and a more than 2% increase in the rate of growth between 1983 and 1986.

Remarkably, though, the standard errors in Tables 3 and 4 do not show the Fed doing a significantly worse job than the Bank of Japan in meeting the M2 target or projection. Using the "standard errors" in the two tables, the Fed appears to come closer to attaining its M2 target than the Bank of Japan does to its (M2+CD) projection.[24] Further, the standard deviation of the M2 outcome is lower in the U.S. than in Japan.

Germany.

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[23] It is not possible to infer from Table 4 how accurately the Bank of Japan meets its annual targets. One possibility is that the error would increase more than proportionately with time because the known initial conditions are further away; the other is that the Bank would have more time to correct any errors.

[24] The comparison is not straightforward because while the Japanese data are end of period, the U.S. data are quarterly averages, which biases the comparison against the Japanese results. See also the preceding footnote.

The Bundesbank, the first central bank to announce money targets, has targeted "central bank money" since the end of 1974. Targets and outcomes are presented in Table 5.[25] Central bank money consists of non-bank currency plus 16.6% of demand deposits, 12.4% of time deposits and borrowed funds, and 8.1% of savings deposits. In origin it is equal to currency plus required reserves, a concept that could be called the "required base", except that the required reserves are calculated using reserve ratios of 1974. The Bundesbank describes it rather as a weighted sum of components of the broad money stock, with weights reflecting the liquidity of the components.

Table 5: CENTRAL BANK MONEY TARGETS, GERMANY.

	Target	Actual
1975	8.0	9.9
1976	8.0	9.3
1977	8.0	9.0
1978	8.0	11.4
1979	6.0-9.0	6.4
1980	5.0-8.0	4.8
1981	4.0-7.0	3.5
1982	4.0-7.0	6.1
1983	4.0-7.0	7.0
1984	4.0-6.0	4.6
1985	3.0-5.0	4.5
1986	3.5-5.5	7.8
1987	3.0-6.0	
Mean:	6.3	7.0
Std.dev.		2.4
Std.err.[1]		1.0

Source: Isard and Rojas-Suarez (1986), Table 35, p.84, through 1985; Monthly Report of the Deutsche Bundesbank (Jan.1987) p.2 for 1986 and 1987 data.
Note: For 1975, target is December over December; for 1976 to 1978 year-over-year; for remaining years fourth quarter over fourth quarter.
[1] Mean square difference between outcome and mid-point of target range.

[25] A useful account through 1982 is contained in Schlesinger (1983). See also "The longer-term trend and control of the money stock", Monthly Report of the Deutsche Bundesbank, Vol.37, 1 (Jan.1985), pp13-26.

Up till 1978 the target was quite high (relative to later years), and the outcome higher. From 1979 the targets were given as a range. The Bundesbank typically indicates where in the range it expects to come out, and why: accordingly "it has not been possible for the announced target [range] to be interpreted arbitrarily by the general public or by the Bundesbank itself".[26] The target range was gradually reduced from 1979; although the actual growth rate of CBM did not fall steadily, it was lower after 1978 than before, and except in 1986 within or below the range. Typically the Bundesbank was aiming for the lower part of its range.

The Bundesbank provides a precise rationale for the target, which is obtained by a process essentially of targeting nominal GNP. There is an allowance for unavoidable inflation, plus growth of real GNP, typically at the growth rate of potential output, plus an estimate of velocity change[27]. The real growth rate is that of potential output because the Bundesbank tries rigorously to limit the temptation to engage in countercylical policy. It appears to allow itself to adjust for unemployment only within the target range: for instance, in 1982 and 1983 it aimed for the upper half of the target range explicitly because unemployment was high.[28] While it emphasizes that its primary responsibility is to maintain the value of money, it permits deviations in response to exchange rate movements--particularly in light of the

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[26] Report of the Deutsche Bundesbank, 1980, p.30.
[27] More recently the Bundesbank has stopped making an allowance for velocity change, on the grounds that it is unpredictable.
[28] Report of the Deutsche Bundesbank, 1983, p.33.

Deutschmark's role in the EMS--and also interest rate movements. Any deviation generates a detailed explanation.[29]

The Fed's justification of its targets is generally less precise, probably because it presents ranges for four variables and sometimes more. Nor do past failures receive a careful explanation such as that of the Bundesbank, probably again for the same reason.

The targeting procedures and explanations provided by the Bundesbank appear convincing and fully serious. By comparison with the procedures of the Fed and the Bank of Japan, they raise the question of whether CBM is the optimal target, whether there should be only one target, and whether targets are preferable to projections. The outcome of the Bundesbank's policies also raises the question of whether a central bank should be directed to consider the impacts of its actions on unemployment as well as the value of money.

United Kingdom.

The Bank of England adopted M3 targets for internal use in 1973, and began announcing the targets in 1976. The official explanation of their adoption stressed the fight against inflation and the need to anchor expectations.[30] The U.K. has continued to publish an M3 (since 1977 sterling M3) target since then, but since 1982 has added other targets, and in 1987 is tending to place more weight on M0, the monetary base. Table 6 presents U.K. targets and outcomes.

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[29]For example, "The monetary target for 1987", Monthly Report of the Deutsche Bundesbank, (Jan. 1987), pp.1-2.

[30]I draw freely in this section on Fischer (1987).

Table 6: MONEY TARGETS, U.K.

	M3		M1		M0	
	Target	Outcome	Target	Outcome	Target	Outcome
1976	9.0-13.0	7.3				
1977	9.0-13.0	15.4				
1978	8.0-12.0	11.4				
1979	8.0-12.0	10.3				
1980	7.0-11.0	19.4				
1981	6.0-10.0	12.8				
1982	8.0-12.0	11.2	8.0-12.0	12.3		
1983	7.0-11.0	9.5	7.0-11.0	14.0		
1984	6.0-10.0	11.9			4.0-8.0	5.7
1985	5.0- 9.0	16.5			3.0-7.0	3.3
1986	11.0-15.0	18.2*			2.0-6.0	4.5*
Mean	9.6	13.1				
Std.dev.		3.6				
Std.err.		3.2				

Source: Isard and Rojas-Suarez (1986), Table 35, p.84, through 1985.
1986 data from OECD Economic Outlook, (Dec.1986), Table 1.
Note: Targets were also specified for two years for a broader liquidity aggregate.
*Data through September.

Table 6 should be read in conjunction with Figure 2, showing CPI inflation. The first few years of monetary targeting appeared successful, both in meeting targets (except for 1977) and in bringing down the inflation rate. But then in 1980 M3 grew far in excess of the target range as inflation returned to nearly 20%. The very high rate of growth of M3 in 1980 can be explained as a result of reintermediation following regulatory changes and the end of foreign exchange controls. The Bank of England's failure to control its growth may be attributed to its reluctance to push interest rates higher than they already were at a time of sterling strength.

Because the sterling M3 demand function appeared to be breaking down, the Bank of England added both an M1 and a broader monetary aggregate target in 1982 and 1983. It was not successful in bringing those variables within the target range either. Since it appears that M0, the monetary base has a stable relationship with nominal GNP, the Bank has more recently switched to announcing M0 targets. It has succeeded in hitting these at the same time as inflation has come down, though it emphasizes that it does not target M0 in order to control the money supply through the base. Rather it targets M0 because of the apparent stability of its demand function, aiming to hit that target through adjustments of market interest rates.

The Bank of England has not been successful in achieving its monetary targets, and in the period up to 1982, was not successful either at controlling the inflation rate. Since then inflation has come down though M3 growth has remained high and unstable, and unemployment has been high and stable.

Operating Procedures.

There has been much controversy in the United States over the Fed's operating procedures.[31] It was argued that the Fed, although specifying operating targets for monetary policy in terms of both reserves and interest rates, was allowing the interest rate targets to dominate, and therefore losing sight of the quantity targets.

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[31]For a Federal Reserve view of the issues, see Lindsey (1986); for a technical description of the operating procedures from 1979 to 1982, and references, see Goodfriend er al (1986).

In Japan, Germany, and the U.K., monetary policy is operated in the short run largely through control of interest rates, and in Japan and Germany also through control over the quantity of central bank credit provided the banking system.[32] Open market operations are thought of as a means of influencing interest rates and thereby the quantity of money demanded, rather than controlling the money base and thus through a stable money multiplier the supply of money.

These procedures and their rationale would be severely criticized if the Fed were to espouse them explicitly. Nonetheless, they have not hampered the ability of the Bank of Japan and the Bundesbank to attain their monetary targets. Of course, both the Bank of Japan and the Bundesbank hope to develop more efficient money and capital markets in which to conduct open market operations, and the trend is clearly in that direction.[33] Still, it is difficult examining German and Japanese monetary policy to believe that much of the blame for the Fed's failures to hit its monetary targets can derive from imperfections in the way it tries to control the money stock, as opposed to conscious decisions that the targets should not be met in a particular period.[34]

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[32] Feldman (1986) provides a detailed description of the Japanese financial system. Suzuki (1986) compares U.S. and Japanese financial innovations; Suzuki (1987) is an extremely accessible account of the liberalization and internationalization of Japanese financial markets, and the implications for monetary policy. Descriptions of Bundesbank operating procedures can be found from time to time in the Monthly Report of the Deutsche Bundesbank; "The Bundesbank's transactions in securities under repurchase agreements", March 1983, pp.23-30 is useful. The Bank of England's The Development and Operation of Monetary Policy, 1960-1983 describes the money supply process and decisions.

[33] In Japan the large government budget deficit and the consequent increase in the supply of bonds have been instrumental in the development of the money and bond markets.

[34] This argument is made, on the basis of Japanese operating procedures, by Dotsey (1986).

IV. Conclusions.

The record of policy reviewed in this paper raises questions about the role of monetary targets, gradualism and credibility. In the background there are also questions about the flexible exchange rate system.

Monetary Targeting.

Monetary targeting serves the valuable purpose of forcing the central bank to announce its intentions for the next year, and of explaining why it failed to meet them this year. Provided the targets are taken seriously, targeting lends a coherence to monetary policy that operating by the "touch and feel" of the market does not. Even where targeting has not been successful, as in the U.K., the failures suggest where to look for an explanation, and to some extent how to improve policy.

The adoption of monetary targeting does not necessarily imply inactive policies. None of the four countries, including Japan, has tried to keep money growth constant and all have responded to the business cycle, to velocity shocks, and to the exchange rate.

Nominal GNP Targeting: The activist procedure explicitly followed by the Bundesbank is the right way of doing nominal GNP targeting (Taylor, 1985). Each year a target is chosen for nominal GNP, based on the desired breakdown between inflation and real growth. The monetary target is then derived from target GNP and a forecast of velocity. Approval of targeting in that fashion does not however imply that the target real growth rate should always be the growth rate of potential output, or that the target rate of inflation need necessarily be zero.

How Many Goals of Policy? The Bundesbank and the Bank of Japan both have as their main task the preservation of the value of the currency. The Bank of Japan was able to reduce the inflation rate after 1975 without an apparent cost in terms of higher unemployment. The Bundesbank's policies from 1979, combined with tight fiscal policy, succeeded in wringing inflation out of the system at the expense of much higher unemployment. There was in Germany virtually none of the respite from monetary tightness that the Fed provided in the U.S. in 1982 as the recession worsened. By giving the central bank both real independence and as its primary responsibility the maintenance of price stability, which virtually absolves it from concern over unemployment, the legal system may produce a deflationary bias in the economy. If there is a significant probability that the central bank will be the main economic policymaker--and the growing immobilization of countercyclical fiscal policy makes that increasingly the case--there is good reason to require it to give weight to unemployment as well as inflation when making its decisions.[35]

Projections v. Targets: The choice between "projections" and "targets" is a subtle one. The Bank of Japan has in the last few years maintained stable money growth and stable projections, and presumably therefore it has also been attaining its unpublished targets. At the same time, by projecting only for the current quarter, it leaves itself great

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[35]The question arises of whether central bank policy has any influence on real variables like the rate of unemployment. There is much evidence that expansionary policy can in the short run lead to an expansion of output; if some hysteresis-like view of the economy is correct, then such short-run changes in output tend to be permanent.

flexibility for any longer period. Its credibility appears sufficient for the projections to be regarded as targets. It is unlikely that other central banks can rely on being able to achieve similar "targeting without targets" in the near future.

How Many Money Targets? The Bundesbank and the Bank of Japan have each elected to focus on just one monetary variable, the Fed on many, and the Bank of England sometimes one and sometimes more. There is a strong theoretical justification for the multi-target view, arising from the fact that the central bank in fact influences many monetary variables, each of which has a slightly different and uncertain effect on ultimate target variables--and feedback from which makes it easier for the monetary authority to decipher changes in the economy. By using several targets, including perhaps interest rates (and a rule for deciding how to compromise when they cannot all be attained) the central bank reduces the uncertainty about the effects of its actions on the economy. For instance, the failure of the Fed to meet its M1 targets on many occasions appears less serious when it does come close to achieving the other targets.

Nonetheless, the clarity of the one-variable approach is appealing, both in its impact as a signal, and for the consistency it might force on the central bank. If it could be shown empirically that there was little to be gained (in an expected utility sense) by having more than one money target--for instance because the correlation between one of the monetary variables closely controllable by the central bank and nominal GNP was exceptionally close--it might be worthwhile narrowing the list of targets to one.

In both Japan and Germany the single targeted monetary variable has smaller variance of velocity than that of other money concepts.[36] In the U.K. M3 velocity has been highly unstable, which partly accounts for the shift to M0 targeting. In the U.S. M2 velocity is more stable than that of M1, though less stable than the velocity of M3. On the basis of the stability of its velocity and the Fed's success in hitting that target, M2 currently would appear to be a useful target variable--even though the collection of assets in M2 has little analytic coherence, and it would remain to be seen whether a switch to M2 targeting would put Goodhart's Law into effect and destroy the relative stability of M2 velocity.

Gradualism and Credibility.

After a sharp change in money growth and a deep recession in 1974, the Bank of Japan succeeded in gradually reducing both money growth and inflation over the succeeding decade, with an interruption from the second oil shock. The short sharp shock worked for the Bank of Japan. But it did not work for the Bundesbank. After bringing down inflation in 1973-74, the Bundesbank faced generally rising inflation until the second oil shock and then was only able to reduce inflation by creating and maintaining high unemployment. Similarly, both the Fed and the Bank of England had to create massive recessions in the early eighties to get the inflation rate down, despite their successes at reducing inflation in the first oil shock.

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[36]Data are presented in Isard and Rojas-Suarez (1986), Table 32; of course the predictability of velocity over the next year rather than its variability is the more relevant measure of the suitability of a given target variable, but in practice predictability and variability are closely related.

It is easy to believe that the Bank of England lacked credibility, and that the Fed lacked credibility until 1982. But why should that have been true of the Bundesbank? Perhaps, though it is unlikely, it had tolerated too high inflation in the late seventies. Any analysis that stresses credibility has to explain why the inflation rate came down in Japan with only one recession, while it took two or three recessions for each of the other countries, and in two of them prolonged high unemployment.

The difference may lie much more with the workforce than with the policymakers. Whereas nominal wage increases rose in each of the other three countries in the second oil shock, Japanese wage inflation did not. If it had, the Bank of Japan would have created another recession. That threat is not sufficient to stop wage increases--in evidence, note that the Bundesbank's implicit threat had to be carried out when wage inflation increased in Germany in 1981.

U.S. policy after 1982 also suggests that credibility is not a simple function of money growth performance (Blanchard,1987). M1 growth in the U.S. has been higher in the period since 1982 than over any comparable period. There has been no perceptible impact on sensitive asset market variables, such as interest rates, let alone on wages or prices. Obviously the markets believe that the M1 growth signifies nothing about future inflation. They are probably right.

The lesson is that someone with credibility can do and explain sensible actions that at other times would be viewed with the greatest suspicion. Further, I believe the lesson is also that credibility is

earned by successful outcomes, rather than by holding rigorously to intermediate targets. This is the case for not attempting to force central banks to hold strictly to their money targets in the face of shifts in velocity or other relevant circumstances.

Exchange Rates.

Exchange rates and current account imbalances have received little explicit attention in this paper. In the U.K. and Germany monetary policy has at times been dominated by the behavior of the exchange rate. That was true in the United States in 1978, and may be about to happen in Japan now.

However this does not suggest that the U.S., Japan and Germany will anytime soon be willing to forego monetary independence in the interests of stabilizing exchange rates. Bundesbank reports make it clear time and time again that it views price stability as the overriding goal. European countries that want to accept or attain the German inflation rate can join the EMS, and Britain may do that soon. The U.S. is less concerned with inflation relative to unemployment than is Germany, which means that a newly fixed dollar-DM exchange rate would suffer the same fate it did in the early seventies--particularly given divergent fiscal policies. Since Japan's inflation preferences are different from those of the U.S., and its trading patterns are different from those of Europe, it is unlikely to fix exchange rates against either the dollar or the DM.

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Figure 1. Annual Real GNP Growth Rates

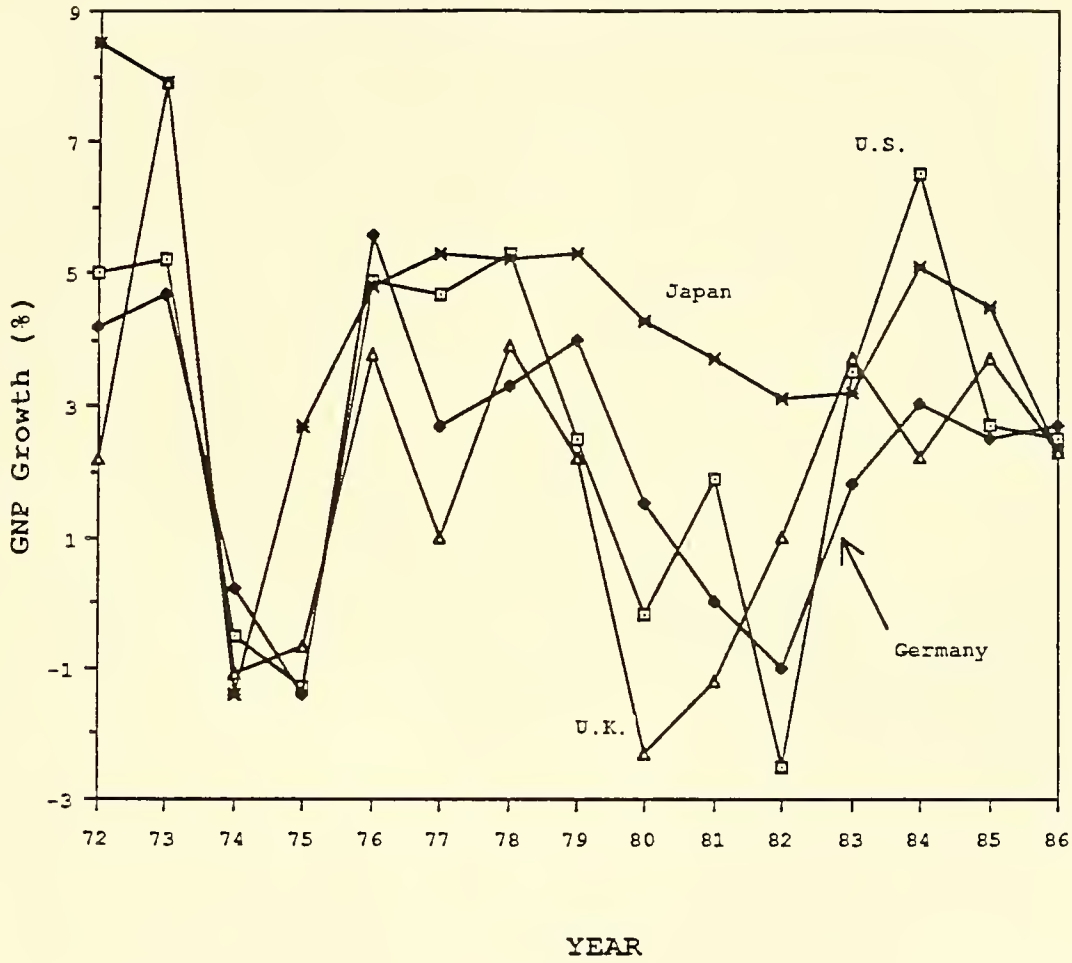


Figure 2. Annual CPI Inflation Rates

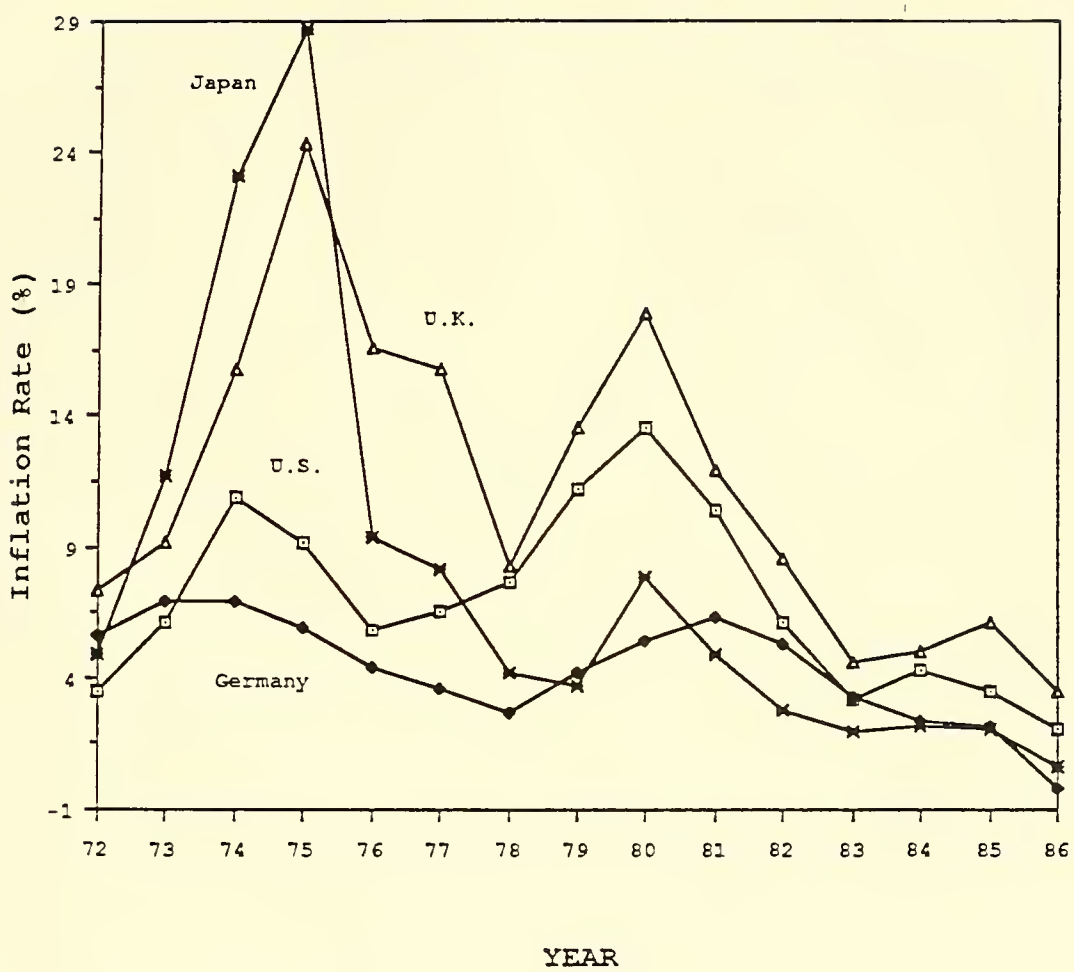


Figure 3. Unemployment Rates

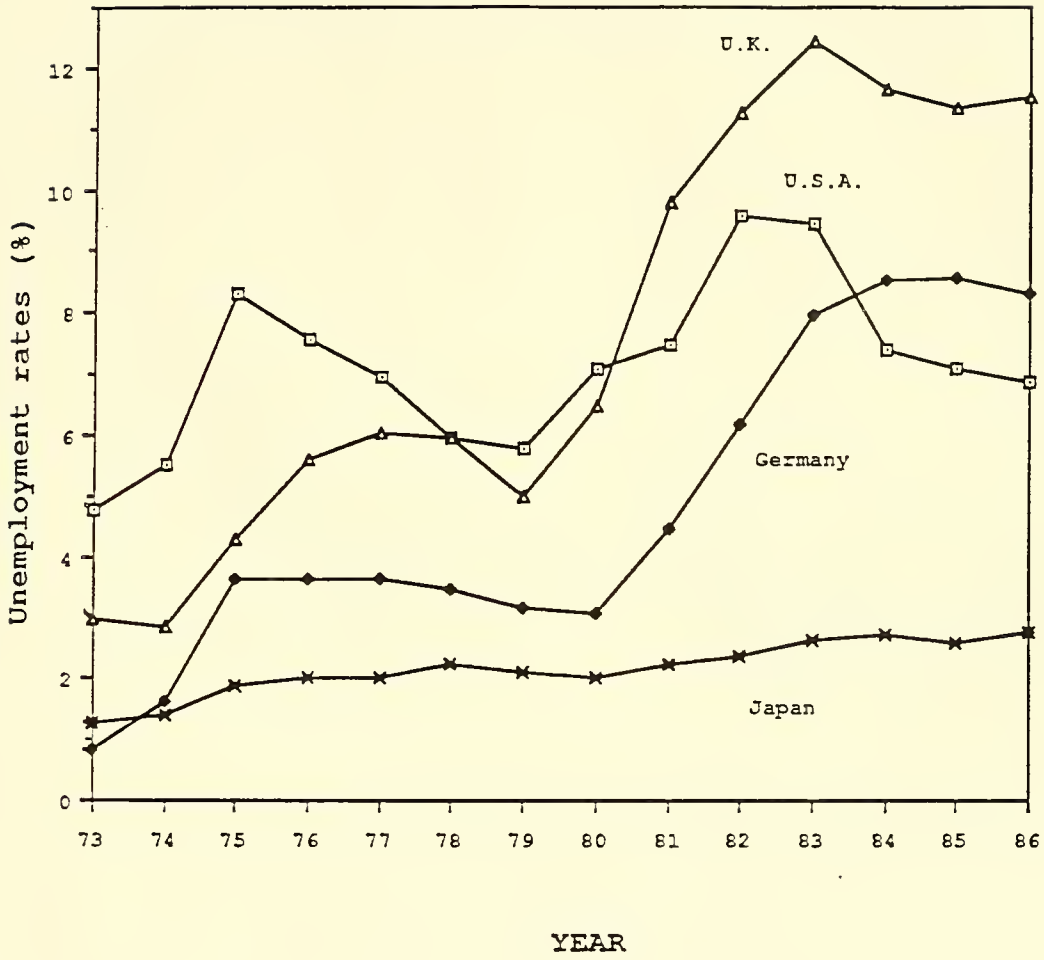


Figure 4. Money Growth, 2 Oil Shocks

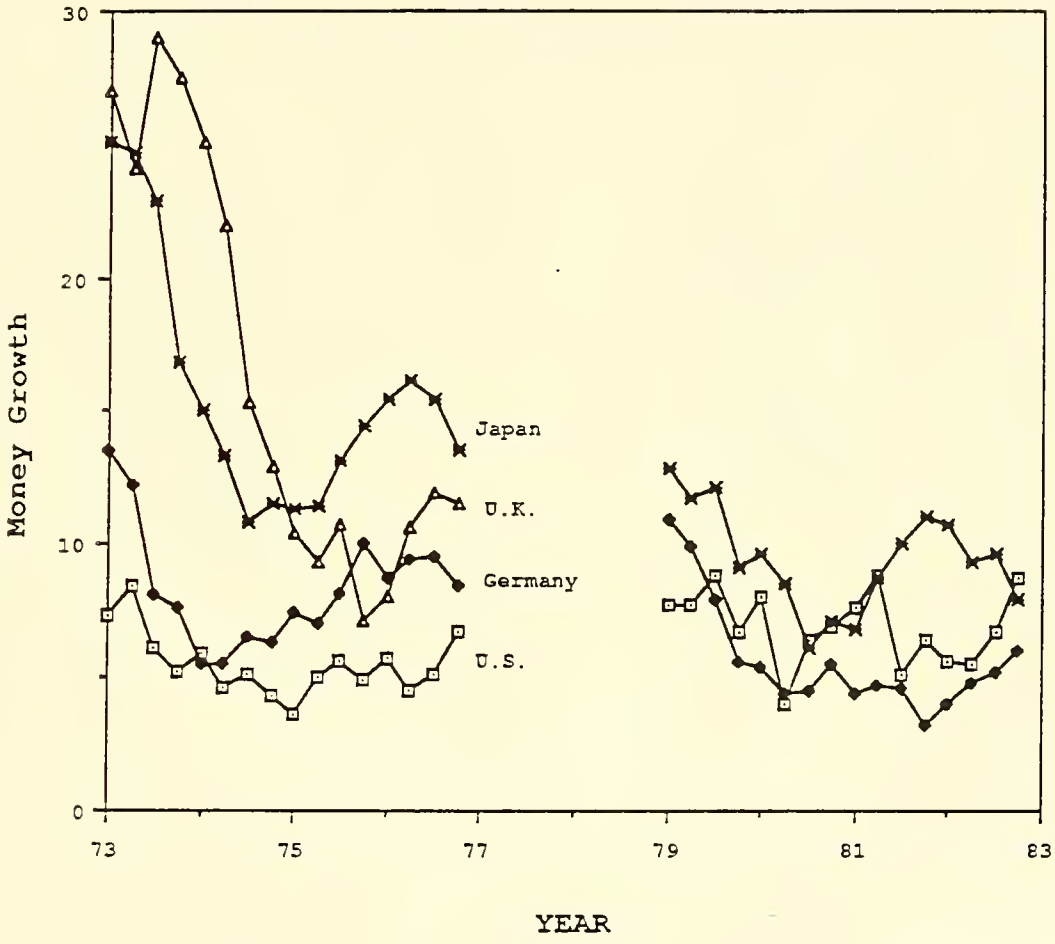


Figure 5. Interest Rates, 2 Oil Shocks

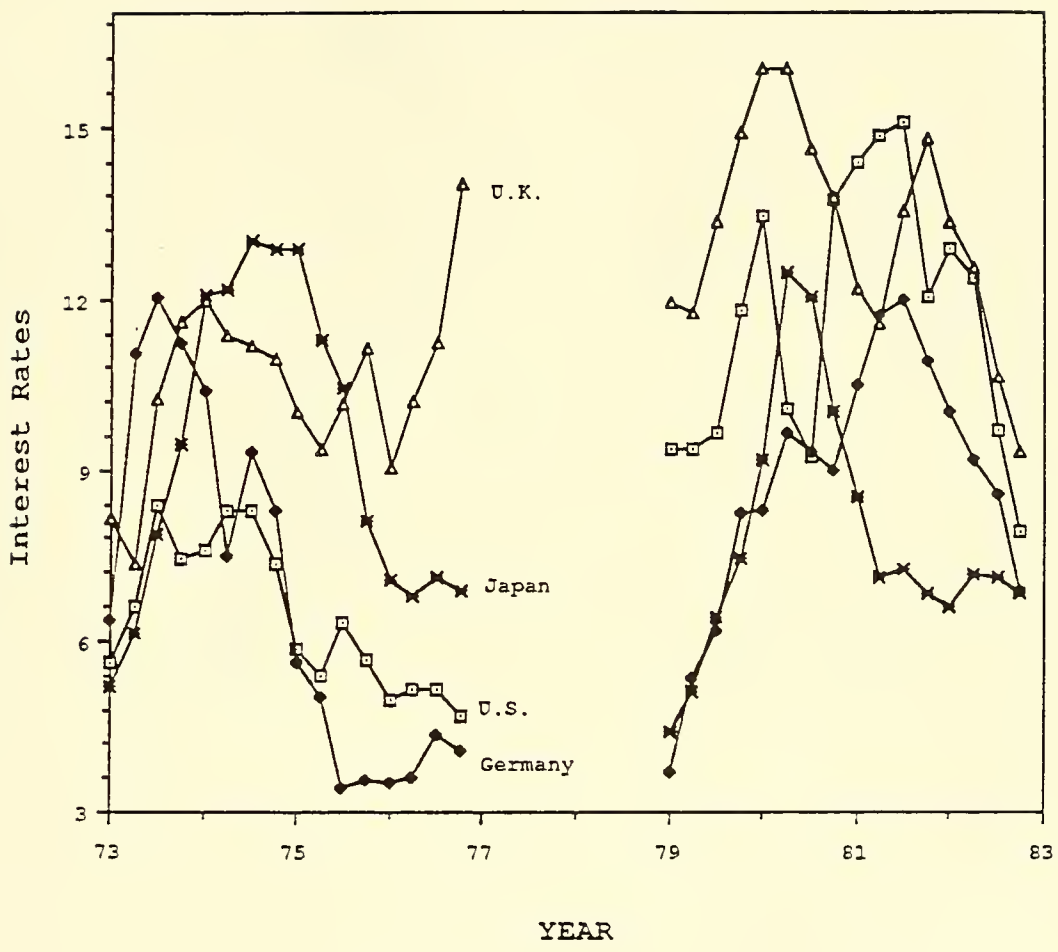


Figure 5. Interest Rates, 2 Oil Shocks

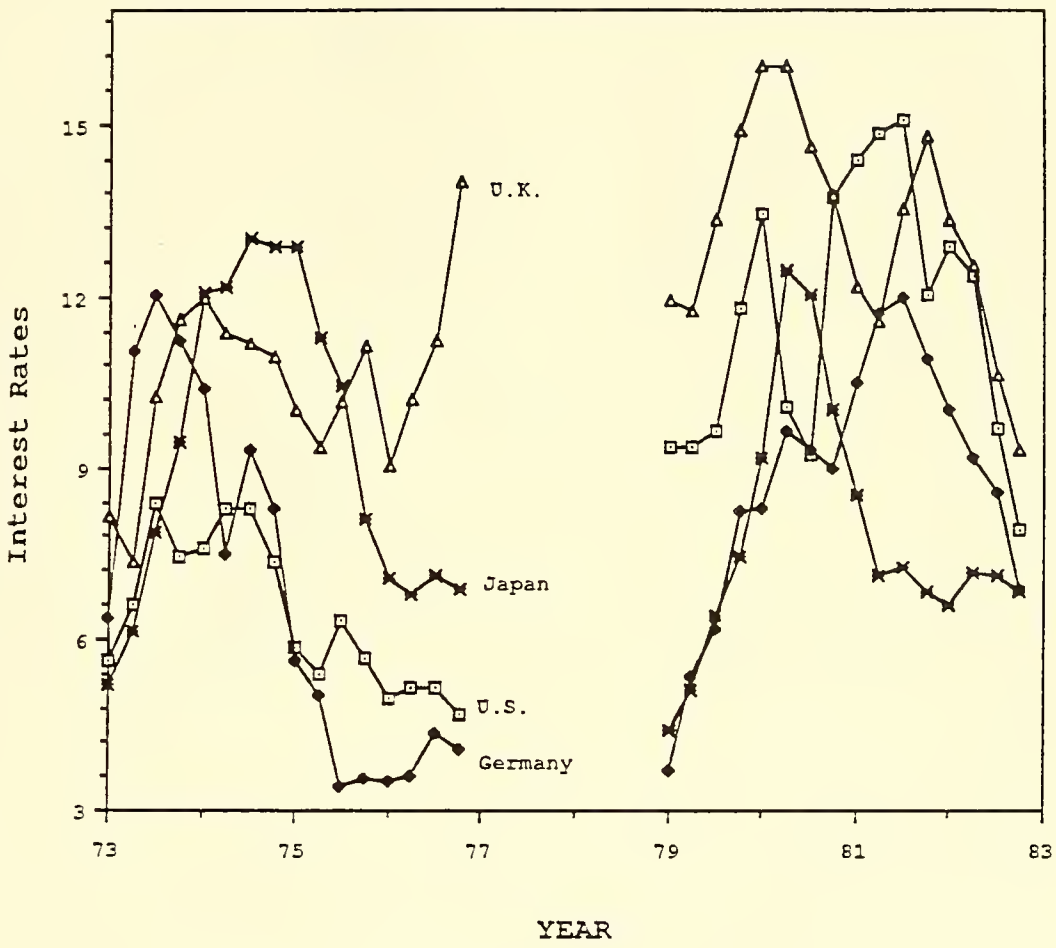


Figure 6. Government Deficits, 2 Oil Shocks

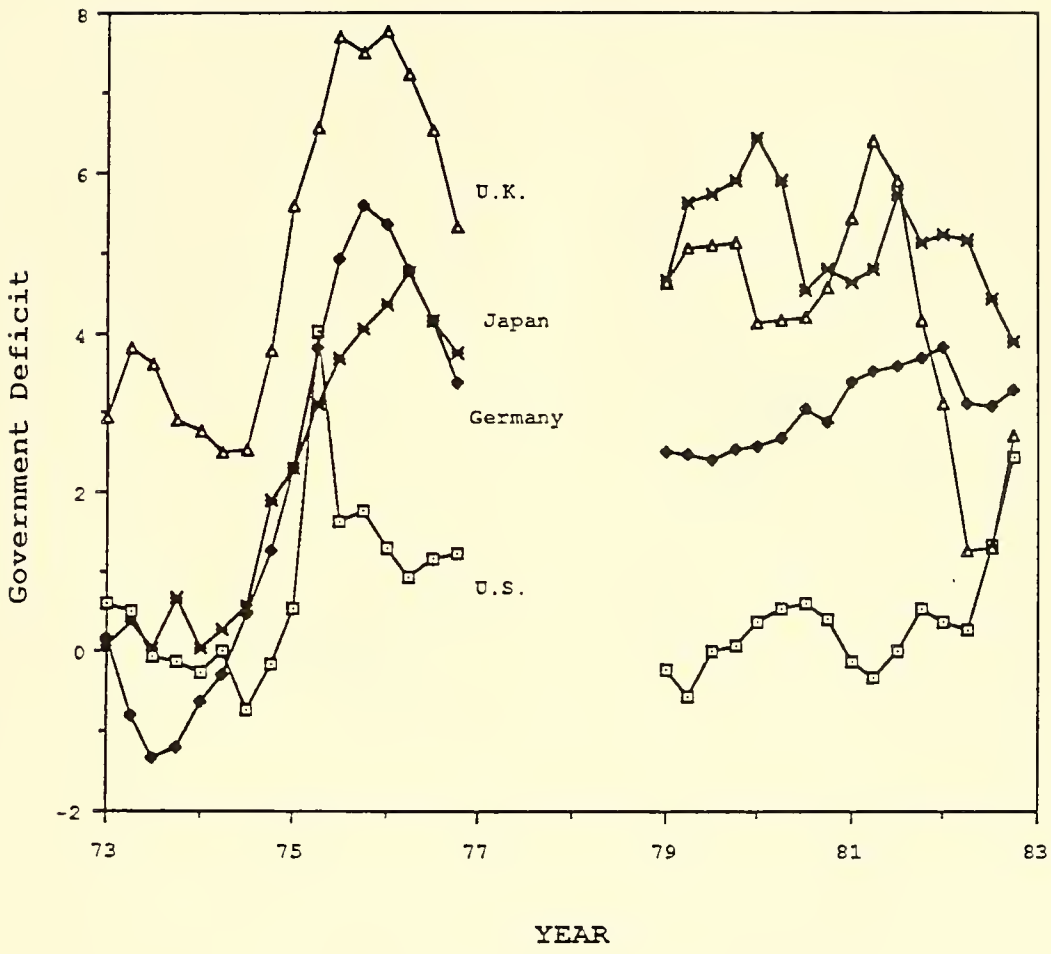


Figure 7. MERM Exchange Rates, 2 Oil Shocks

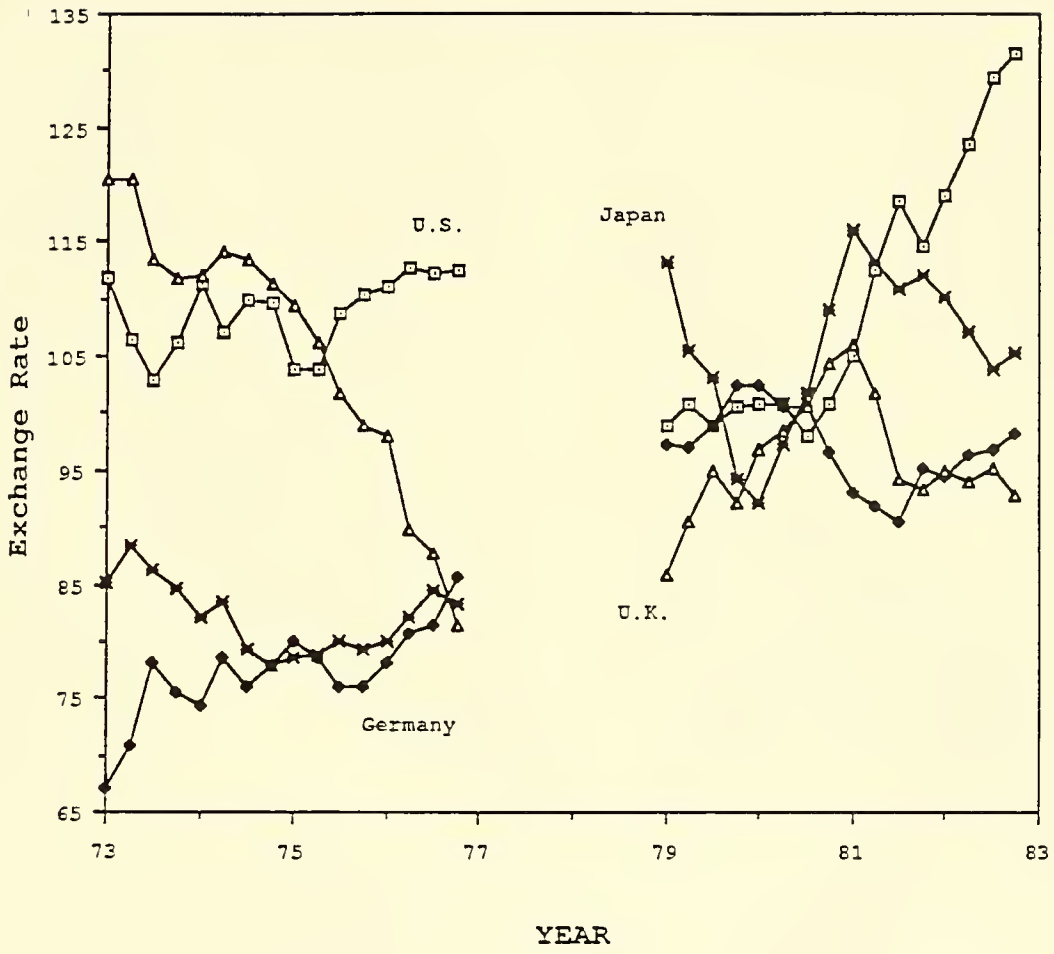


Figure 8. CPI Inflation, 2 Oil Shocks

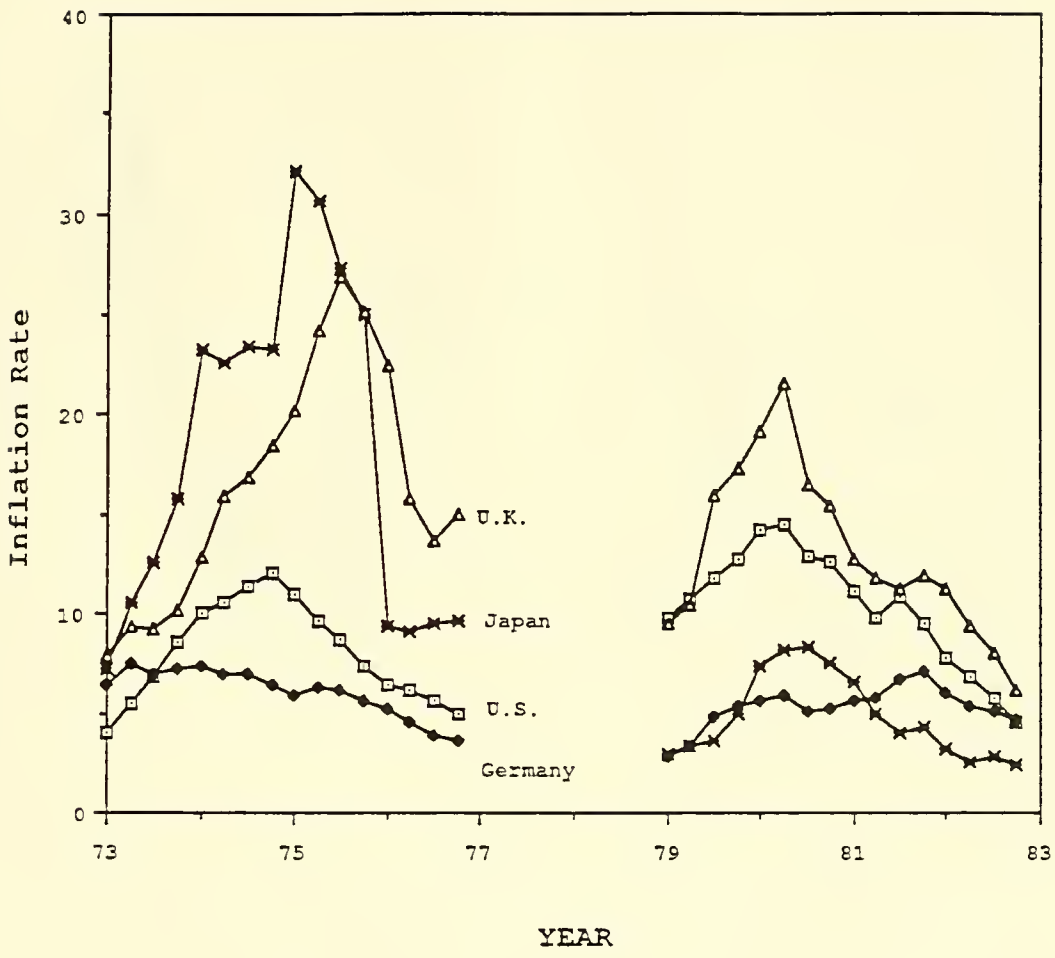


Figure 9. Real Growth, 2 Oil Shocks

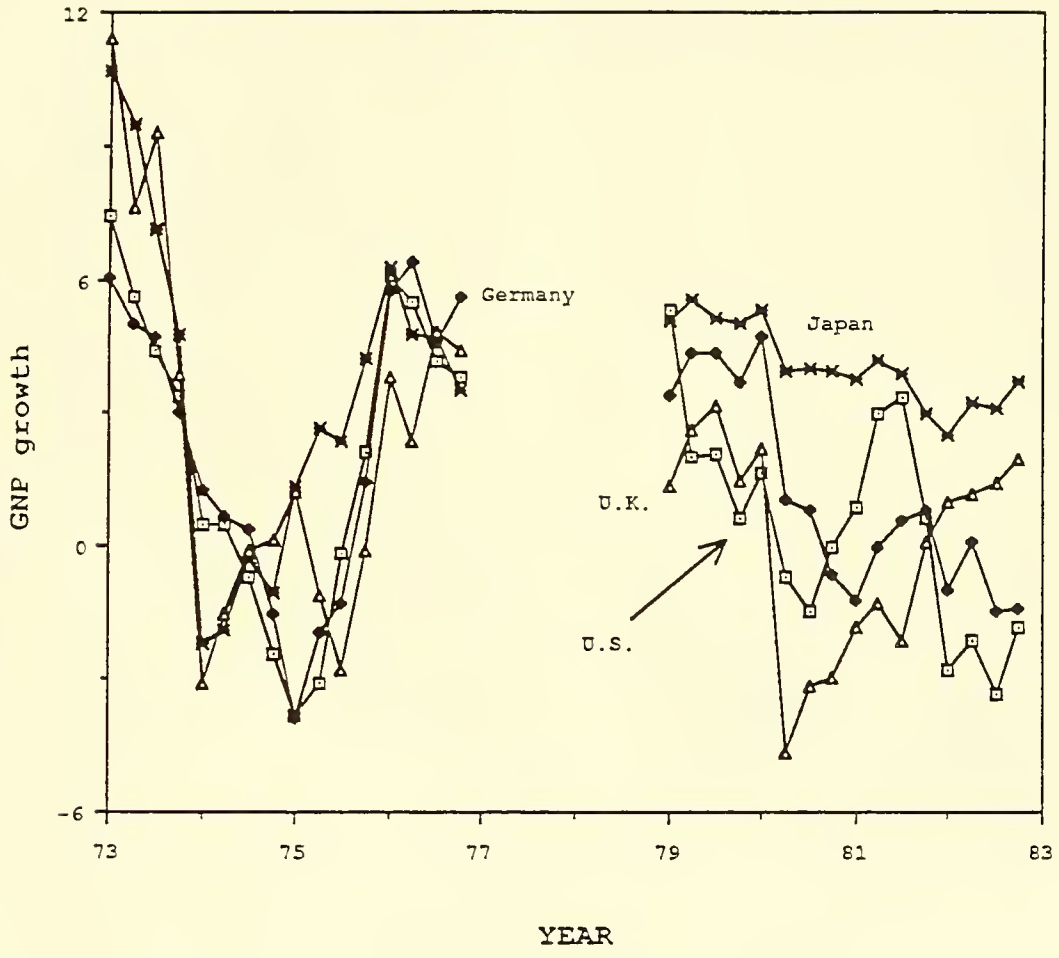
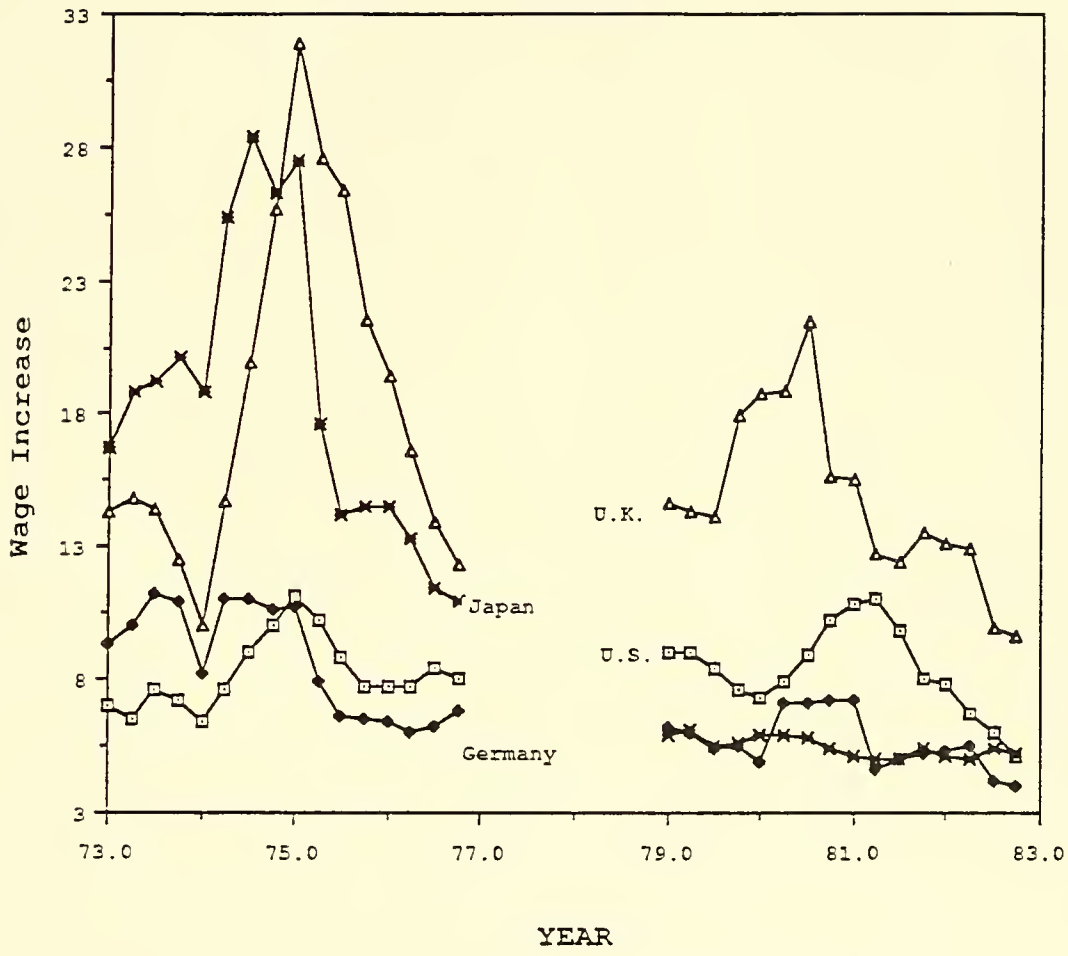


Figure 10. Rates of Wage Increases, 2 Oil Shocks



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